keep them all in *Cholus*, especially as, throughout the whole of the group, structural characters are not correlated with the general appearance.

Cholus mœstus.

C. oblongo-ovatus, depressus, subnitide niger, denudatus, elytris macula basali utrinque fasciaque pone medium, ad suturam interrupta, ex squamulis pallide flavis confertis ornatis. Long. 7 lin.

Hab. Sarayacu.

Oblong-ovate, depressed, black, slightly glossy, glabrous, a spot at the base near the shoulder and a slightly oblique narrow band, not meeting its fellow at the suture, composed of pale yellowish minute scales; rostrum glossy black, elongate, dilated and finely punctured towards the apex; antennæ ferruginous, basal joint of the funicle twice as long as the two next together, the rest cylindrical; prothorax transverse, very minutely punctured, a few small glossy spots dotting the duller black; scutellum suboblong, smooth; elytra slightly broader than the shoulders at the base, abruptly contracted near the apex, seriate-punctate, punctures small, distinct; body beneath and legs with small scattered setulæ and round imbedded scales, the legs ferruginous; femora slender.

A glabrous, depressed, and somewhat isolated species; the elytra abruptly contracted towards the apex cause a gibbosity above the contracted portion, which is very marked, although noticeable in many species.

VII.—*On a small Collection of Crustacea and Pycnogonida from Franz-Josef Land, collected by B. Leigh Smith, Esq.*

By Edward J. Miers, F.L.S., F.Z.S., Assistant in the Zoological Department, British Museum.

[Plate VII.]

The Crustacea which form the subject of the present memoir were all collected by Mr. Leigh Smith in a single locality a little to the south of Franz-Josef Land, in lat. 79° 55′ N., long. about 51° E., during his recent expedition to the Arctic seas in his yacht 'Eira,' and have been generously presented by him, with other animals collected in the same cruise, to the British Museum. Mr. W. Grant, who accompanied him as naturalist, undertook the care and preservation of the specimens.

The collection, although not numerous in species, is of considerable interest, in that it contains two Amphipoda which are apparently new to science, and a Pycnogonid which is

not only remarkable on account of its very large size (in which it is only exceeded by the gigantic Antarctic species mentioned by Dr. v. Willemöes-Suhm as having been obtained by the 'Challenger' expedition), but also as constituting the type of an apparently new genus allied to, but distinct from, *Pasithoë* and *Rhopalorhynchus**.

The precise locality is, moreover, one hitherto unexplored by the naturalist.

Dr. Camil Heller, in his account of the Crustacea collected by the late Austrian expedition to the North Pole (Denkschr. der Akad. der Wissensch. Wien, xxxv. p. 25, 1878), enumerates twenty-four species of Crustacea and three of Pycnogonida, most of these, unfortunately, without precise indication of locality; and Mr. W. S. M. D'Urban has recently given an account of the Crustacea with other Invertebrata collected by Mr. W. J. A. Grant in the Barents Sea during two expeditions of the Dutch vessel 'Willem Barents,' in 1878 and 1879. Nineteen Crustacea and five Pycnogonida were obtained in these two expeditions. They were determined by the Rev. A. M. Norman and Prof. J. O. Westwood; and all seem to have been collected in latitudes considerably to the south of Franz-Josef Land. (See Ann. & Mag. Nat. Hist. 1880, vol. vi. p. 262).

Decapoda.

Crangon (*Cheraphilus*) *boreas* (Phipps).

An adult male, length 3 inches 3 lines.

Hippolyte Phippsi, Kröyer.

Four specimens of the female form (described by Kröyer as *H. turgida*) are in the collection; length of the largest 1 inch 8 lines. There is also a specimen which is probably to be referred to the male form of this species, in which all the dorsal teeth of the rostrum except the three nearest to the apical spine are obsolete. There are three teeth on the lower margin. The second supraocular spine is distinctly developed. Length about 1 inch 5 lines.

Hippolyte polaris (Sabine).

Six females are in the collection. The length of the largest is not less than 2 inches 5 lines. The rostrum in this series is $\frac{4-6}{2-3}$-toothed. With these specimens is one that is very

* I regret to have been unable to consult an important memoir by Prof. G. O. Sars, on the new Crustacea and Pycnogonida collected during the Norwegian Expedition in 1877–78, and published at Christiania during the present year (1880).

probably to be referred to the male or *borealis* form of *H. polaris*, in which the rostrum is entirely devoid of teeth on its upper margin, and possesses but a single small tooth on the lower margin. The larger flagellum of the antennules is considerably thickened. The anterior margin of the carapace is armed with a supraocular and infraocular spine. Prof. S. I. Smith, it may be observed, has noted that in extreme varieties of *H. polaris* the rostrum is wholly edentulous.

Amphipoda.

Anonyx nugax (Phipps).

Numerous specimens of this, perhaps the commonest Arctic Amphipod, were collected.

Acanthonotozoma inflatum (Kröyer).

A single female was obtained. This specimen agrees very well with Goës's figure of the species; but the anterior margin of the coxa of the fourth thoracic limb is regularly rounded, whereas in Goës's figure it is represented as somewhat angulated. The dorsal carina, which is described by Boeck as very high (*altissima*), on the first three postabdominal segments, in Goës's figure and in our specimen is distinct, but not much elevated.

Acanthostepheia pulchra, sp. n.
(Pl. VII. figs. 1, 2.)

Body robust. Head, as in *A. Malmgreni*, armed with a long dorsally, inferiorly, and laterally carinated rostrum, which is somewhat curved downward toward the apex, and is prolonged beyond the distal end of the first exposed joint of the superior antennæ; posteriorly the dorsal keel of the rostrum is prolonged backward between the eyes to the posterior margin of the head. Each of the segments of the body present, indications of a median dorsal carina, which is elevated in the form of a single obtuse somewhat triangular lobe on the fifth and sixth segments, and forms two lobes on the seventh segment; two similar lobes exist on each of the first four segments of the postabdomen; but the lobes, although acute, are not so greatly produced backward, and on the fourth segment a much greater interval exists between the first and second of the dorsal lobes in *A. pulchra* than in *A. Malmgreni*. The postero-lateral angles of the sixth and seventh segments of the body and of the first three segments of the postabdomen are regularly rounded—not, as in *A. Malmgreni*, produced into spines. The superior antennæ are relatively shorter than in

A. Malmgreni, the last joint of the peduncle being less developed than in Goës's figure of that species. The penultimate joints or palms of the first and second legs in *A. pulchra* are regularly ovate, without indications of teeth on the inferior margins as in Goës's representation of *A. Malmgreni*. The coxal joints of the legs (particularly of the fourth and sixth pairs) appear to be more developed. As in *A. Malmgreni*, the seventh thoracic legs are greatly elongated. The uropoda and terminal segment do not present any very marked distinctive characters. Length of the largest specimen to tip of rostrum about 1 inch 5 lines.

Three females were collected.

The absence of spines at the postero-lateral angles of the posterior thoracic and postabdominal segments would sufficiently characterize this species, independently of the other distinctions enumerated in the above diagnosis.

The outer maxillipedes are very similar to those of *A. Malmgreni* as figured by Goës. The outer lamina reaches very nearly to the middle of the dilated antepenultimate joint of the palpus.

Halirages fulvocinctus (Sars).

A good series of specimens (females) are in the collection, which agree very well with Goës's figure of the species, and with the specimens collected by the late British Arctic expedition.

Amathillopsis affinis, sp. n.
(Pl. VII. figs. 3–5.)

The head is produced anteriorly into a short, convex, subacute rostrum, which does not reach nearly to the distal end of the first joint of the superior antennæ, and has a small antero-lateral lobe on each side between the superior and inferior antennæ. As in *Amathillopsis spinigera*, Heller, the dorsal surface of each of the thoracic segments and of the first three postabdominal segments bears a long acute dorsal lobe or spine; and, as in that species, the spines become successively longer, the last excepted, which is very small. As in *A. spinigera*, the lateral margins of the first three postabdominal segments are sinuated and terminate in a spine at their postero-lateral angles. The terminal segment is less dilated at its distal end, which is very slightly emarginate. The superior antennæ terminate in very long and slender flagella, and are nearly twice as long as the inferior antennæ; the terminal joint of the peduncle is relatively shorter than in *A. spinigera*, and the accessory flagellum so minute as to be undistinguishable except under

the microscope. The first and second legs (gnathopoda) are slender and feeble, the first rather the smaller; the merus is produced distally beneath the carpus, which is about as long as the palm or propus, and is very narrow at its proximal end; the palm in both is about twice as long as broad, of a more oblong form than in *A. spinigera*, obliquely truncated at its distal end, against which the slender arcuate dactyl impinges. The coxal joints of the legs are not so distinctly emarginate at their distal ends; those of the fourth legs are much more developed than in *A. spinigera*. The legs are very imperfect in the single specimen examined; but the basal (2nd) joints of all the legs are oblong-oval and more dilated than in *A. spinigera* as figured by Heller.

The single specimen (which it was necessary to decapitate to examine the mouth-organs) is a female.

This species is easily distinguished from its congener by the form of the telson, the greater length of the superior antennæ, the form of the first and second legs, the carpi of which are not so produced at their infero-distal angles, the coxal joints of the third and fourth legs, &c.

In the mouth-organs, so far as could be ascertained from the dissection of the unique example, the following differences are observable: the apex and accessory process of the mandible is broader, truncated; the exterior lobe of the outer maxillipede does not reach to the middle of the antepenultmate joint of the palpus. The two forms, however, bear a very close external resemblance to one another, and I cannot regard them as generically distinct; moreover the examination of additional specimens is needed in the case of *A. affinis*.

Eusirus cuspidatus, Kröyer.

Three specimens (females) are in the collection. Length of the largest 1 inch 7 lines.

Tritropis aculeata (Lepechin).

A single female example of this common arctic species occurs in Mr. Grant's collection.

Pycnogonida.

Nymphon hirtum, Fabr.

I refer a single example in the collection to this species. The pubescence covering the body is rather short and dense.

Nymphon gracile, Leach.

Five examples are in the collection which appear to be referable to this species.

ANOMORHYNCHUS, gen. nov.

Body robust, with the segments coalescent and the leg-bearing processes nearly in contact with one another. Rostrum greatly developed, constricted at the proximal end, and hence flask-shaped—that is, provided with a distinct neck. First pair of appendages (antennæ or mandibles) wanting; second pair 9-jointed, with the second and fourth joints elongated; third pair (the so-called ovigerous legs) 10-jointed, the fourth and sixth joints elongated, the tenth joint bearing a small terminal claw. Claws of the legs simple. Abdomen about half as long as the body, very slender, uniarticulate.

This new genus must be placed in the family Pycnogonidæ as characterized by Dr. Semper in his arrangement of the group (Verh. physik.-medicin. Gesellschaft Würzburg, vii. p. 274, 1874); but it is not to be confounded with any of the genera therein enumerated. Structurally it is most nearly allied to the *Rhopalorhynchus Kröyeri* of Wood-Mason (Journ. Asiat. Soc. Bengal, 1873, xlii. pt. 2, p. 172, pl. xiii. figs. 1–5, and Ann. & Mag. Nat. Hist. 1873, ser. 4, xii. p. 342), from the Andamans; but in this genus the neck and distinctly-segmented body are very slender, the leg-bearing processes being separated by wide intervals, and the abdomen is rudimentary.

From *Pasithoë*, Goodsir (*Endeis*, Philippi), with which *Oiceobathes*, Hesse, is perhaps identical, this genus is distinguished by the more numerous articulations of the appendages, the great development and basal constriction of the rostrum, and the simple claws.

Anomorhynchus Smithii, sp. n.
(Pl. VII. figs. 6–8.)

The body and its appendages are robust and apparently naked, but clothed with very minute, stiff, sparse hairs, which render the surface scabrous to the touch. The head is very robust, in the larger specimen nearly once and a half the length of the body with the abdomen; its constricted proximal portion or neck widens somewhat suddenly, and is about one fourth the length of the head, which is nearly cylindrical; the oral aperture large and triangulate. The segments of the body are coalescent, and scarcely any traces of them distinguishable. The abdomen is very slender, much narrower than, and half as long as, the body; the ophthalmic process elevated, conical, and acute. The first and second

pairs of appendages are closely approximated; the first pair is articulated with a very short process of the thorax; its basal joint is also very short, the second joint considerably elongated, the third very short, the fourth rather more than half as long as the second; of the remaining joints the sixth is longest, but shorter than the fourth. The second pair of appendages is articulated with a short thoracic process; and its first three joints are short, the fourth and sixth joints greatly elongated, the seventh to tenth short, subequal, and fringed with short spines on their under surfaces. The first three joints of the legs, and the processes of the thorax with which they are articulated, are short, the fourth to sixth joints considerably elongated, the seventh little shorter than the eighth, both together not as long as the sixth, the terminal claw styliform and acute. Total length of the largest example 2 inches 2 lines, of the head and neck rather more than 1 inch 3 lines, of the abdomen nearly 4 lines ($\frac{1}{3}$ inch); greatest width between tips of legs (when expanded) rather more than $8\frac{1}{2}$ inches. Two specimens were collected.

The four terminal joints of the third (ovigerous) pair of appendages are short and capable of being coiled together so as to form a prehensile organ, as observed by Prof. J. Wood-Mason in *Rhopalorhynchus Kröyeri*, a peculiarity observable also in some other Pycnogonida.

I have much pleasure in associating with this fine species the name of its distinguished discoverer, Mr. Leigh Smith.

Besides the above Crustacea, certain species were collected by Mr. Smith in the seas to the north of Spitzbergen, about which no detailed observations need be offered. They are *Hippolyte turgida*, a Schizopodous crustacean in too mutilated condition for determination, *Gammarus locusta*, *Onesimus litoralis*, and *Themisto libellula* (in considerable numbers).

EXPLANATION OF PLATE VII.

Fig. 1. *Acanthostepheia pulchra*, sp. n. (nat. size), lateral view.
Fig. 2. Second leg of the same (magnified).
Fig. 3. Outer maxillipedes of *Amathillopsis affinis*, sp. n. (magnified).
Fig. 4. Second leg of the same, showing the form of the hand (magnified).
Fig. 5. Terminal segment of the same (magnified).
Fig. 6. *Anomorhynchus Smithii*, gen. and sp. n. (slightly reduced).
Fig. 7. Lateral view of the body of *A. Smithii*, showing the form of the oculigerous tubercle and cephalic appendages (nat. size).
Fig. 8. Front view of the rostrum of the same, showing the form of the mouth (nat. size).